

**REMARKS**

**I. Status of Application**

By the present Amendment, claim 13 has been added and claims 2 and 10 have been canceled without prejudice or disclaimer. Claims 1, 3-9 and 11-13 are all the claims pending in the application. 1-12 have been rejected.

**II. Formalities**

The Examiner has indicated that the drawings filed on July 16, 2009 have been accepted.

The Examiner has considered all the references cited with the Information Disclosure Statements filed on July 26, 2006, December 10, 2007 and April 21, 2009.

However, the Office Action Summary included with the 05/27/09 Office Action does not acknowledge the claim to foreign priority or acknowledge that all the certified copies of the priority documents have been received. Accordingly, Applicant respectfully requests that the Examiner acknowledge the aforementioned claim to foreign priority and acknowledge that all the certified copies of the priority documents have been received.

**III. Statement of Substance of Interview**

Please review and enter the following remarks summarizing the telephonic interview conducted on June 4, 2009 between Examiner Joshua King and Applicant's representative Andrew J. Taska.

During the interview, 2-4 and 10-12 were discussed along with the outstanding rejections under 35 U.S.C. § 112. Applicant's representative reached an agreement with the Examiner that if claims 2, 10 and 12 were amended, as set forth above, to specify that the recited "same plane"

is perpendicular to a central longitudinal axis of said solid-state pumping medium, then such amendments would render the outstanding rejections under 35 U.S.C. § 112 moot.

Applicant's representative reached an agreement with the Examiner that the terms "odd" and "even" direction numbers, as claimed, satisfy the requirements of 35 U.S.C. § 112 when properly construed in light of the specification (*see e.g.*, Paragraph 0046 of the published application).

No exhibits or demonstrations were provided.

It is respectfully submitted that the instant STATEMENT OF SUBSTANCE OF INTERVIEW complies with the requirements of 37 C.F.R. §§1.2 and 1.133 and MPEP §713.04.

#### **IV. Claim Rejections Under 35 U.S.C. 112**

First, claims 2-4 and 10-12 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner alleges that claims 2-4 and 10-12 contradict the disclosure of the instant application in that there are numerous "planes" which meet the definition of the word in the claim.

Applicant respectfully traverses these rejections.

As an initial matter, Applicant notes that claims 1 and 9 have been amended, as set forth above, to incorporate recitations from claims 2 and 10, and claims 2 and 10 have been canceled without prejudice or disclaimer.

Further, without conceding to the merits of the Examiner's rejections, Applicant has amended claim 12, and claims 1 and 9 (which now incorporate recitations from claims 2 and 10), as set forth above, to specify that "said same plane is perpendicular to a central longitudinal axis of said solid-state pumping medium." Applicant respectfully submits that, in view of the above amendments, the Examiner's rejections under 35 U.S.C. § 112, second paragraph, are now moot, as agreed upon by the Examiner during the telephone interview conducted on June 4, 2009.

Second, claims 3, 4, 11 and 12 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention since the terms "Odd" and "Even" are allegedly not clearly defined. Applicant respectfully submits that the terms "odd" and "even" direction numbers, as claimed, satisfy the requirements of 35 U.S.C. § 112 when properly construed in light of the specification (*see e.g.*, Paragraph 0046 of the published application) as agreed upon by the Examiner during the telephone interview conducted on June 4, 2009.

Accordingly, Applicant respectfully requests that the Examiner withdraw these rejections.

**V. Claim Rejections Under 35 U.S.C. § 102**

Claims 1-6 and 9-12 are rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by JP 2004-014917 to Tsunekane (hereinafter "Tsunekane"). Applicant respectfully traverses these rejections.

As an initial matter, Applicant notes that claims 2 and 10 have been canceled without prejudice or disclaimer and, therefore, the Examiner's rejections of claims 2 and 10 are now moot.

Independent claim 1 recites (among other things):

...a controller configured to determine a position of said failed laser diode, and to control supply currents to other normal laser diodes, according to the position of said failed laser diode.

Tsunekane fails to disclose or suggest *at least* the above features and, therefore, claim 1 is not anticipated by Tsunekane. For example, the grounds of rejection rely on paragraph 0006 of Tsunekane as allegedly teaching the above features. In contrast to claim 1, however, paragraph 0006 of Tsunekane merely discloses a controller that, when a semiconductor laser breaks down, short-circuits a relay connected in parallel with a group containing the broken down semiconductor. Thereafter, Tsunekane discloses that electric power is supplied to semiconductor lasers belonging to other groups. That is, Tsunekane teaches little more than the disadvantageous parallel configurations already discussed in paragraph 0006 of the published application as impractical countermeasures against the stoppage of the oscillator.

Indeed, contrary to claim 1, Tsunekane nowhere discloses or suggests a controller configured to determine a position of a failed laser diode, and to control supply currents to other normal laser diodes, according to the position of said failed laser diode. For example, as explained in paragraphs 0010-0017 of the published application, conventional apparatuses like those disclosed in Tsunekane have problems in that (among other problems) a pointing deviation is caused. To this effect, Tsunekane discloses that the intensity of the excitation light 3 is maintainable about the intensity equivalent to the intensity before the semiconductor laser element LD3 breaks down by making the electric power supplied to the

semiconductor laser elements R1, R2 and R4 increase and, thus, the solid state laser media 7 can output the laser beam 8 by the same intensity as before the failure of semiconductor laser element LD3 (paragraph 0016). As explained in the present specification, however, according to devices like those in Tsunekane, when the output of the laser diodes is uneven due to the failure of LD3, the solid state laser media 7 is not uniformly pumped and the laser beam is deflected in the solid state laser media 7, causing a pointing deviation.

To address the disadvantages of apparatuses like those in Tsunekane, the claimed invention recites a controller configured to determine a position of a failed laser diode, and to control supply currents to other normal laser diodes, according to the position of said failed laser diode. Illustrative embodiments of the claimed invention thereby correct the unevenness of the pumping distribution in the solid-state pumping medium. Tsunekane is completely silent regarding such features.

In fact, Tsunekane's controller is not configured to determine a position of the failed semiconductor laser element LD3 at all. Quite to the contrary, Tsunekane merely discloses that the controller 6 outputs the relay control signal S2 to the switch 4, and short-circuits every one of the relays R1 through R4 one by one. Tsunekane further discloses that, if the relay R3 short-circuits, then current will flow into the circuit 5 and, at this time, it becomes clear that the broken semiconductor laser element is LD3. Thus, Tsunekane discloses that the controller 6 is configured to determine that the broken semiconductor laser element is LD3, but provides no disclosure or suggestion regarding determining the position of the broken semiconductor laser element is LD3, much less the features of controlling supply

currents to other normal laser diodes, according to the position of the broken semiconductor laser element is LD3. Indeed, Tsunekane teaches nothing more than a configuration of parallel-connected semiconductor laser elements in which the broken semiconductor laser element is simply bypassed and the electric power supplied to the other semiconductor laser elements is increased regardless of the position of the broken laser diode. Therefore, claim 1 is not anticipated by Tsunekane for *at least* these reasons.

In addition, without conceding to the merits of the Examiner's rejections, claim 1 has been amended, as set forth above, to incorporate recitations from claim 2. Amended claim 1 recites (among other things):

...wherein said operation of selecting said laser diode comprises selecting a part or all of normal laser diodes positioned on a same plane as the position of said failed laser diode, and

wherein said same plane is perpendicular to a central longitudinal axis of said solid-state pumping medium.

Support for the above amendments is provided by *at least* paragraphs 0015 and 0033-0035. No new matter has been added.

Tsunekane fails to disclose or suggest these features. Indeed, Tsunekane provides no suggestion whatsoever regarding selecting a part or all of normal laser diodes positioned on a same plane as the position of a failed laser diode, wherein said same plane is perpendicular to a central longitudinal axis of said solid-state pumping medium, as recited in amended claim 1.

Therefore, claim 1 is not anticipated by Tsunekane for *at least* these additional independent reasons. Further, the dependent claims 2-6 are patentable *at least* by virtue of their dependency.

In view of the similarity between the recitations of claim 9 and the recitations discussed above with respect to independent claim 1, Applicant respectfully submits that arguments analogous to the foregoing arguments as to the patentability of independent claim 1 demonstrate the patentability of claim 9. As such, it is respectfully submitted that claim 9 is patentably distinguishable over Tsunekane *at least* for reasons analogous to those presented above. Further, Applicant submits that the dependent claims 11-12 are allowable *at least* by virtue of their dependency on claim 9. Thus, the allowance of these claims is respectfully solicited of the Examiner.

Additionally, with respect to claims 2-4 and 10-12<sup>1</sup>, the grounds of rejection allege that these claims do not further limit their respective base claims since claims 2-4 and 10-12 allegedly employ functional language describing the function of the device and not the device itself. Applicant respectfully disagrees with the grounds of rejection.

As an initial matter, Applicant notes even assuming *arguendo* that claims 2-4 *were* deemed to employ functional language, it is well-established that a functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys

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<sup>1</sup> By the present Amendment, features of claims 2 and 10 have been incorporated into amended claims 1 and 10, respectively.

to a person of ordinary skill in the pertinent art in the context in which it is used (MPEP §2173.05(g)).

Moreover, claims 2-4 positively distinguish the structure of the claimed laser-diode-pumped solid-state laser oscillator from that disclosed in Tsunekane. For example, claim 2<sup>2</sup> is plainly directed to the laser-diode-pumped solid-state laser oscillator according to claim 1, wherein the structural configuration of the controller recited in claim 1 is further limited in a specific manner (i.e., “said controller is configured to stop supply of electric current to and turn off a part or all of normal laser diodes positioned on a same plane as the position of said failed laser diode” (emphasis added)).

Similarly, amended claim 3 is plainly directed to the laser-diode-pumped solid-state laser oscillator according to claim 1, wherein the structural configuration of the controller recited in claim 1 is further limited in a specific manner (i.e., “said controller is configured to stop supply of electric current to and turn off a normal laser diode provided at a position facing the position of the failed laser diode in a case where a direction number of said laser diodes is even” (emphasis added)).

Likewise, amended claim 4 is plainly directed to the laser-diode-pumped solid-state laser oscillator according to claim 1, wherein the structural configuration of the controller recited in claim 1 is further limited in a specific manner (i.e., “wherein said controller is configured to stop supply of electric current to and turn off all of the normal laser diodes

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<sup>2</sup> By the present Amendment, features of claim 2 have been incorporated into amended claim 1.



positioned on said same plane in a case where a direction number of said laser diodes is odd” (emphasis added)).

Since Tsunekane’s controller 6 is not configured in the manner recited in claims 2-4, Tsunekane fails to anticipate claims 1 and 3-4<sup>3</sup>.

Further, the grounds of rejection have not provided any evidence in fact and/or reasoning to support the conclusory allegations that the device of Tsunekane is capable of functioning as claimed. To the contrary, the grounds of rejection summarily allege that Tsunekane is capable of functioning as claimed without citing to any particular aspect of Tsunekane as allegedly teaching the claimed features.

Finally, Applicant notes that claims 10-12<sup>4</sup> are directed to a method of controlling laser diodes and, thus, necessarily employ functional language. However, since Tsunekane fails to disclose or suggest the operations recited in claims 10-12, and the grounds of rejection have failed to identify any specific aspect of Tsunekane as allegedly teaching these features, Tsunekane fails to anticipate claims 9 and 11-12<sup>5</sup> for *at least* these additional reasons.

As such, Applicant respectfully requests that the Examiner withdraw these rejections.

## **VI. Claim Rejections Under 35 U.S.C. § 103**

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<sup>3</sup> By the present Amendment, features of claim 2 have been incorporated into amended claim 1.

<sup>4</sup> By the present Amendment, features of claim 10 have been incorporated into amended claim 9.

<sup>5</sup> By the present Amendment, features of claim 10 have been incorporated into amended claim 9.

Claims 7 and 8 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tsunekane in view of U.S. Pre-Grant Publication 2002/0126724 to Tsunekane et al. (hereinafter “Tsunekane 2”). Applicant respectfully traverses these rejections.

The dependent claims 7 and 8 incorporate all the novel and nonobvious features of their base claim 1. For *at least* the reasons already discussed above, Tsunekane fails to teach or suggest all the recitations of claim 1. Moreover, Tsunekane 2 fails to remedy the deficient teachings of Tsunekane. Therefore, the dependent claims 7 and 8 are patentable over the cited references *at least* by virtue of their dependency and Applicant respectfully requests that the Examiner withdraw these rejections.

#### **VII. New Claim 13**

New claim 13 has been added and is fully supported by the original specification. No new matter has been added.

Claim 13 is patentably distinguishable *at least* because the cited references fail to teach or suggest the features of a controller configured to determine a direction from which a failed laser diode irradiated pumping light to the solid-state pumping medium, and to control supply currents to other normal laser diodes, according to the determined direction, as claimed. Accordingly, Applicant respectfully requests that the Examiner allow claim 13 for *at least* these reasons.

#### **VIII. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

AMENDMENT UNDER 37 C.F.R. § 1.111  
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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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